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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,461	12/03/2003	Paul G. Wilson	24170759.2	5873

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PATENT DEPARTMENT
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EXAMINER

BOYD, JENNIFER A

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,461

Applicant(s)

WILSON ET AL.

Examiner

Jennifer A. Boyd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Applicant's Amendments and Accompanying Remarks, filed October 25, 2005, have been entered and have been carefully considered. Claims 2 – 3 are cancelled and claims 1 and 4 – 25 are pending. In view of Applicant's amendments to claims 1 and 14, the Examiner withdraws all previously set forth rejections as detailed in Office Action dated August 10, 2005. After another search was conducted, additional prior art has been found which renders in the invention as currently claimed unpatentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1, 4, 7 – 10, 14 – 15, 18 – 20 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Woiceshyn et al. (US 4,762,744).

Woiceshyn is directed to a reinforcing composite for roofing membranes (Title).

As to claim 1, Woiceshyn teaches a composite comprising a first layer of an open network of non-woven adhesive-free continuous filament yarns and as the second and third layers, placed one on each side of the first layer, a lightweight preformed mat (Abstract). The first layer is an open network structure made of continuous filament fiberglass or polyester yarn, preferably a network which is neither woven together, knit together nor held together by adhesive. Woiceshyn teaches that the open network can comprise a non-woven fiberglass scrim

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(column 2, lines 30 – 40). It should be noted that an open network scrim would comprise crossing “warp” and “weft”; the Examiner equates the scrim to Applicant’s “first layer”. The second layer can comprise a spun-bonded mat of polyester or nylon (column 2, lines 55 – 69); the Examiner equates the second layer to Applicant’s “second layer”.

As to claim 4, Woiceshyn teaches that the fibers of the scrim can comprise glass or polyester and the second layer can comprise nylon or polyester.

As to claims 7 and 9 - 10, Woiceshyn teaches that the composite of the first, second and third layers can be impregnated with a single coating of adhesive resin (column 3, lines 5 – 15). Woiceshyn teaches that the adhesive can comprise cross-linked acrylic resin (column 4, lines 15 – 30).

As to claim 8, Woiceshyn teaches that the resin is added by saturating the composite at an add-on rate of about 5 – 100 parts of resin per 100 parts by weight of the composite but preferably with about 10 – 20 parts of resin (column 4, lines 10 – 20).

As to claims 14 and 20, Woiceshyn teaches a composite comprising a first layer of an open network of non-woven adhesive-free continuous filament yarns and as the second and third layers, placed one on each side of the first layer, a lightweight preformed mat (Abstract). The first layer is an open network structure made of continuous filament fiberglass or polyester yarn, preferably a network which is neither woven together, knit together nor held together by adhesive. Woiceshyn teaches that the open network can comprise a non-woven fiberglass scrim (column 2, lines 30 – 40). It should be noted that an open network scrim would comprise crossing “warp” and “weft”; the Examiner equates the scrim to Applicant’s “first layer”. The second layer can comprise a spun-bonded mat of polyester or nylon (column 2, lines 55 – 69);

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the Examiner equates the second layer to Applicant's "second layer". Woiceshyn teaches that the composite of the first, second and third layers can be impregnated with a single coating of adhesive resin (column 3, lines 5 – 15).

As to claim 15, Woiceshyn teaches that the fibers of the scrim can comprise glass or polyester and the second layer can comprise nylon or polyester.

As to claims 18 - 19, Woiceshyn teaches that the composite of the first, second and third layers can be impregnated with a single coating of adhesive resin (column 3, lines 5 – 15).

Woiceshyn teaches that the adhesive can comprise cross-linked acrylic resin (column 4, lines 15 – 30).

As to claim 25, Woiceshyn teaches that the resin is added by saturating the composite at an add-on rate of about 5 – 100 parts of resin per 100 parts by weight of the composite but preferably with about 10 – 20 parts of resin (column 4, lines 10 – 20).

4. Claims 1, 4, 7 – 10, 14 – 15, 18 – 20 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Connor et al. (US 4,539,254).

O'Connor is directed to a reinforcing composite for roofing membranes (Title).

As to claim 1, O'Connor teaches a composite comprising at least one layer of fiberglass, at least one layer of polyester and at a third layer of either polyester or fiberglass. Furthermore, these materials may be formed such that at least one of them is in the form of a mat, at least one of them is in the form of a scrim coated with a thermoplastic adhesive and the third layer is in the form of a mat or a scrim (column 1, lines 59 – 65). The fiberglass scrim can comprise a non-woven scrim; the Examiner equates the scrim to Applicant's "first layer". The polyester mat may

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be a paper laid mat of staple filaments or spunbonded continuous filaments (column 4, lines 1 – 15); the Examiner equates the mat to Applicant's "second layer".

As to claim 4, O'Connor teaches that the fibers can comprise polyester and glass.

As to claim 7, O'Connor teaches that the composite may be bound together using an adhesive (column 2, lines 40 – 50).

As to claim 8, O'Connor teaches that the adhesive may be present in the amount of 5 – 100 parts by weight to 100 parts by weight of the composite (column 3, lines 40 – 55).

As to claims 9 – 10, O'Connor teaches that the adhesive may comprise urea-formaldehyde resin combined with a styrene-butadiene latex (column 3, lines 55 – 69).

As to claims 14 and 20, O'Connor teaches a composite comprising at least one layer of fiberglass, at least one layer of polyester and at a third layer of either polyester or fiberglass. Furthermore, these materials may be formed such that at least one of them is in the form of a mat, at least one of them is in the form of a scrim coated with a thermoplastic adhesive and the third layer is in the form of a mat or a scrim (column 1, lines 59 – 65). The fiberglass scrim can comprise a non-woven scrim; the Examiner equates the scrim to Applicant's "first layer". The polyester mat may be a paper laid mat of staple filaments or spunbonded continuous filaments (column 4, lines 1 – 15); the Examiner equates the mat to Applicant's "second layer". O'Connor teaches that the composite may be bound together using an adhesive (column 2, lines 40 – 50).

As to claim 15, O'Connor teaches that the fibers can comprise polyester and glass.

As to claims 18 – 19, O'Connor teaches that the adhesive may comprise urea-formaldehyde resin combined with a styrene-butadiene latex (column 3, lines 55 – 69).

As to claim 25, O'Connor teaches that the adhesive may be present in the amount of 5 – 100 parts by weight to 100 parts by weight of the composite (column 3, lines 40 – 55).

Claim Rejections - 35 USC § 103

5. Claims 5 - 6, 11 – 13, 16 – 17 and 21 - 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woiceshyn et al. (US 4,762,744).

As to claims 5 - 6, 11 – 13, 16 – 17 and 21 – 24, Woiceshyn et al. discloses the claimed invention except for that fibers have a diameter ranging from 0.00001 inches to 0.0300 inches as required by claims 5 and 16, the fibers have a length ranging from 0.10 inches to about 1.5 inches as required by claims 6 and 17, the first layer comprises a thickness of about 50% of the total thickness of the fiber material as required by claims 11 and 21, the fiber material has a weight of 1.6 lbs/sq foot as required by claims 12 and 22, the overall thickness of the fiber material is about 0.035 inches and the thickness of the first nonwoven layer is about 0.002 to 0.010 inches as required by claims 13 and 23, and the first and second pluralities of fibers are both horizontally dispersed to a substantially uniform thickness as required by claim 24. It should be noted that fiber diameter, layer thickness, layer thickness uniformity and layer weight are result effective variables. As the fiber diameter decreases, the material becomes more flexible and fragile. As the fiber length decreases, the material becomes more flexible. As the thickness and weight of the first layer increases, the material becomes stiffer. As the thickness becomes more uniform, the material has superior mechanical properties. Absent unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the fiber diameter, fiber length, layer thickness, layer thickness uniformity and

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layer weight since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454 USPQ 233 (CCPA 1955). In the present invention, one would have been motivated to optimize the fiber diameter, fiber length, layer thickness and uniformity and the layer weight in order to create a strong, thin and flexible composite suitable for roofing applications.

As to claims 12 and 22, although Woiceshyn does not explicitly teach the claimed the tear strength under the Elmendorf Tear Test of about 393 g mean tear, it is reasonable to presume that the above property is inherent. Support for said presumption is found in the use of like materials (i.e. a composite comprising a mat of directionally oriented strands and a layer of a randomly oriented fibers held together by a binder) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property would obviously have been present once the Woiceshyn product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

6. Claims 5 - 6, 11 - 13, 16 - 17 and 21 - 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al. (US 4,539,254).

As to claims 5 - 6, 11 - 13, 16 - 17 and 21 - 24, O'Connor discloses the claimed invention except for that fibers have a diameter ranging from 0.00001 inches to 0.0300 inches as required by claims 5 and 16, the fibers have a length ranging from 0.10 inches to about 1.5 inches as required by claims 6 and 17, the first layer comprises a thickness of about 50% of the total thickness of the fiber material as required by claims 11 and 21, the fiber material has a

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weight of 1.6 lbs/sq foot as required by claims 12 and 22, the overall thickness of the fiber material is about 0.035 inches and the thickness of the first nonwoven layer is about 0.002 to 0.010 inches as required by claims 13 and 23, and the first and second pluralities of fibers are both horizontally dispersed to a substantially uniform thickness as required by claim 24. It should be noted that fiber diameter, layer thickness, layer thickness uniformity and layer weight are result effective variables. As the fiber diameter decreases, the material becomes more flexible and fragile. As the fiber length decreases, the material becomes more flexible. As the thickness and weight of the first layer increases, the material becomes stiffer. As the thickness becomes more uniform, the material has superior mechanical properties. Absent unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the fiber diameter, fiber length, layer thickness, layer thickness uniformity and layer weight since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454 USPQ 233 (CCPA 1955). In the present invention, one would have been motivated to optimize the fiber diameter, fiber length, layer thickness and uniformity and the layer weight in order to create a strong, thin and flexible composite suitable for roofing applications.

As to claims 12 and 22, although O'Connor does not explicitly teach the claimed the tear strength under the Elmendorf Tear Test of about 393 g mean tear, it is reasonable to presume that the above property is inherent. Support for said presumption is found in the use of like materials (i.e. a composite comprising a mat of directionally oriented strands and a layer of a randomly oriented fibers held together by a binder) which would result in the claimed property. The burden

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is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property would obviously have been present once the O'Connor product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 4 – 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

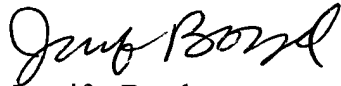
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer Boyd
December 18, 2005



Ula C. Ruddock
Primary Examiner
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